Medical Education

Public Policy Review

A Ten-Year Progress Report on a Family Practice Residency Network in Northern California

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We are now beginning to be able to evaluate the results of the rapid growth of family practice residency training programs during the past decade. Because this growth has been supported by federal and state funds, it is particularly important to review these programs to measure their progress toward the public policy goals established by legislation. The University of California, Davis, School of Medicine has been an innovator and leader in training family physicians. Graduates of the UC Davis Network of Family Practice Residency Programs are locating in medically underserved areas and are helping to respond to the perceived problems of specialty and geographic maldistribution of physicians.

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During the past 15 years, a major United States health policy goal has been to increase the number of physicians who choose a career in primary care—specifically, family practice, general internal medicine and general pediatrics.[1-3] Federal support of medical education via capitation payments, though no longer available, was tied to a requirement of increasing the number of primary care physicians.[2] Direct federal support of primary care training programs has come in the form of grants for the development of academic departments of family medicine, graduate and undergraduate training in family practice and graduate training in primary care internal medicine and pediatrics. The national Area Health Education Center (AHEC) program has also supported primary care physician training through its unique and highly successful incentive program that uses a community priority-setting mechanism for determining program priorities.[4] State funding of family practice education has also assisted the growth of this specialty. In all, 23 states now directly support family practice educational programs.[5] In California the Song-Brown Family Physician Training Act supplies financial support of family practice education as well as the education of family nurse practitioners and physician assistants.[6]

This public support of family practice training grew out of perceived needs for a change in the type of physicians being trained. The Millis, Willard, Pellegrino and Folsom reports in the 1960s clearly elucidated this national need.[7-10] Two of the major issues described by these authors were the lack of an adequate number of physicians to function as the primary providers of ongoing services to persons and families, and a geographic maldistribution of physicians with large rural areas being significantly medically underserved.

During the past 12 years, with the financial assistance of government funding sources, a tremendous growth has occurred in the training of physicians specializing in family practice. There are currently academic departments or divisions of family medicine in 114 of the nation's 130 medical schools.[11] According to data supplied by the American Academy of Family Physicians, as of July 1982 there were 387 approved residency programs in family practice with 7,200 residents in training.

New public policy programs in medical education take at least a decade and, more commonly, two decades until the results of the new policy can be measured for its impact. The process of medical education takes an average of eight years from entrance

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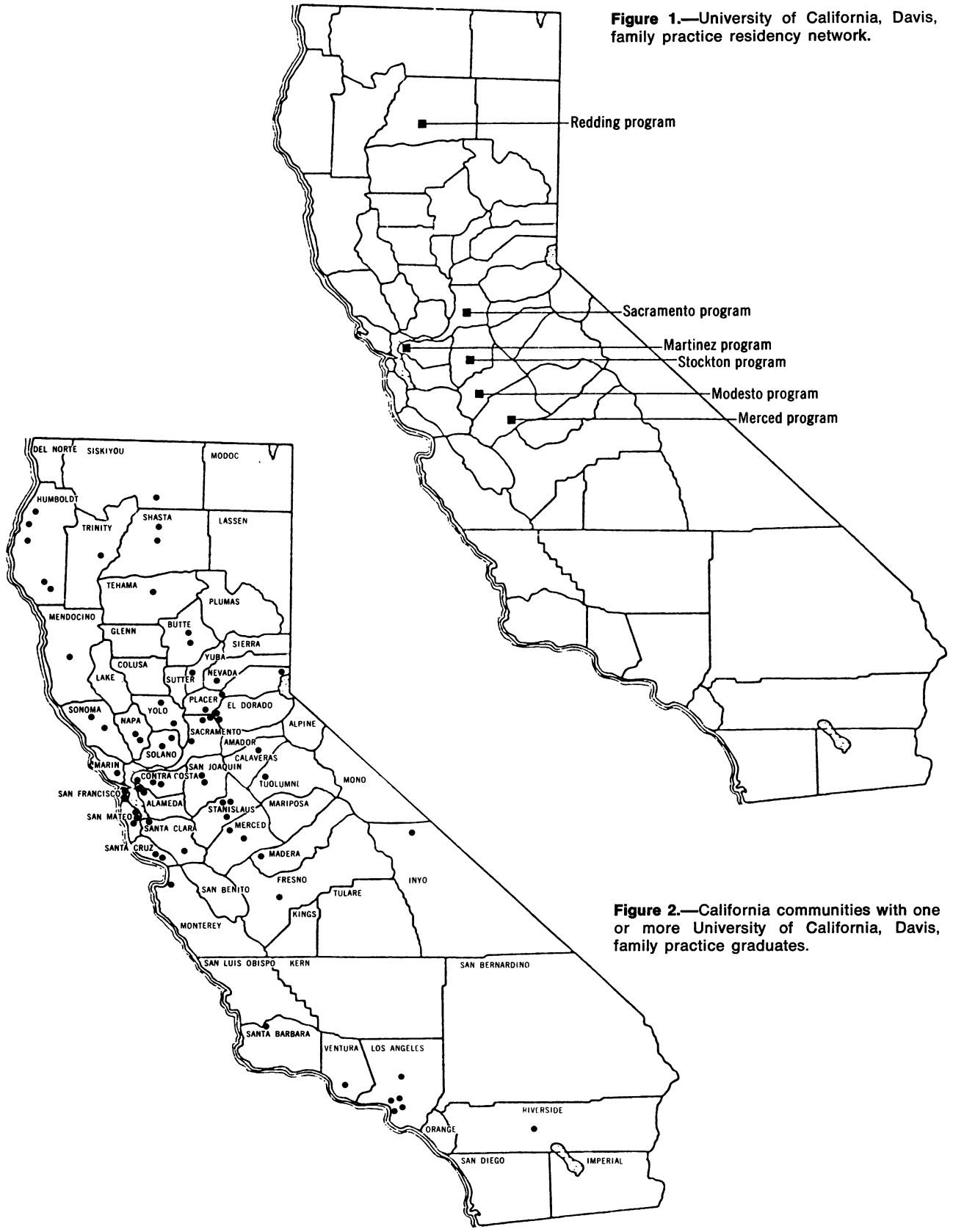

Figure 1.—University of California, Davis, family practice residency network.

Figure 2.—California communities with one or more University of California, Davis, family practice graduates.

TABLE 1.—*Graduates of the University of California, Davis, Family Practice Network Per Year by Program*

Program Location	*Academic Year* 1972-1973	1973-1974	1974-1975	1975-1976	1976-1977	1977-1978	1978-1979	1979-1980	1980-1981	*Total*
Sacramento	1	7	5	8	8	10	10	12	11	72
Stockton	..	..	..	5	5	6	5	6	6	33
Merced	..	..	..	3	5	4	4	3	6	25
Redding	..	..	..	..	3	4	4	4	4	19
Martinez	..	..	..	..	6	6	6	6	6	30
Modesto	..	..	..	..	..	5	4	6	5	20
TOTALS	1	7	5	16	27	35	33	37	38	199

to medical school until that cohort of physicians begins to enter practice. Thus, it is timely to review the progress of primary care training programs toward meeting stated public policy goals.

We review the progress of the University of California, Davis, Network of Family Practice Residency Programs. These programs receive both federal and state support. The network has developed over the past 12 years into a major provider of family physicians for central and northern California. A 1974 article by Geyman and Brown described this developing regional network of Family Practice Residency Programs.[12] The goals and objectives of the network were similar to the national goals enumerated in the initial policy papers.[7-10]

Development

The UC Davis School of Medicine was founded in 1968 and admitted its first class of students that same year. The Department of Family Practice was established in October 1970. The first residency training program developed by the department began in July 1971. This program was located in what was then the Sacramento County Hospital. The university subsequently purchased the hospital and clinics and the facilities are now known as the University of California Davis Medical Center, Sacramento.

The network developed over the ensuing years to its current size of six programs (Figure 1) and 117 residents. The second residency program to join the network began in July 1973 at the San Joaquin General Hospital in Stockton. The following year, the Merced Community Medical Center program began, followed in July 1975 by the program at Shasta County Hospital in Redding. The Merced and Redding programs are integrated with the University Medical Center in Sacramento. Residents in these programs spend the first year of training at the University Medical Center in Sacramento and complete their second and third years at the respective community hospital. Contra Costa County Hospital in Martinez joined the network in 1976 when a previous two-year general practice residency was converted to the three-year format of family practice. The final program joined the network in 1977 at Scenic General Hospital in Modesto.

Graduate Follow-up

To evaluate the outcome of this network, a graduate follow-up study was done. The study population consisted of all graduates of the network from inception through the graduating class of June 1981. There were 199 graduates during this time period. Table 1 shows the network production of graduates by year and by program. The survey instrument used was a mailed questionnaire that elicited information on practice characteristics, hospital privileges, practice location and an evaluation of the training received in residency as preparation for practice. To allow comparisons, portions of the survey instrument were identical to similar surveys of family practice residency graduates in networks in Minnesota,[13] Virginia[14] and Washington.[15] By repeat mailings and telephone contacts by faculty to nonrespondents, 177 completed surveys were returned for an 89% response rate. A review of nonrespondents showed no pattern by program or year of graduation so it was assumed that the respondents adequately reflect the experience of all graduates. Thus, references in this article are to graduates rather than respondents.

TABLE 2.—*Size of Community of Practice Location of University of California, Davis, Family Practice Graduates*

Size of Community	*Number Graduates*	*Percentage*
Under 2,500	6	3
2,500-24,999	60	35
25,000-49,999	27	16
50,000-99,999	16	9
100,000-499,999	34	20
500,000 or more		
Central city	12	7
Suburbs	18	10
No response	4*	..
TOTALS	177	100

*Not included in percent compilation.

Of the graduates, 70% are practicing in California. Figure 2 shows the communities in California in which one or more graduates are located. Many locations have more than one graduate practicing in that location but are represented by only one dot.

The sizes of the communities in which the graduates are located show a pattern of preference for communities of small to medium size. Table 2 shows the distribution of the sizes of the communities in which the UC Davis Network graduates practice. About 69% of the graduates have been in the same location since graduation while 31% have moved one or more times.

The type of practice selected by the graduates shows

TABLE 3.—*Predominant Mode of Practice of Graduates of the University of California, Davis, Family Practice Network*

Practice Type	*Number Graduates*	*Percentage*
Solo, fee for service (FFS)	42	24
Partnership, FFS	24	13
Single-specialty, FFS group	25	14
Multispecialty, FFS group	19	11
Health maintenance organization	14	8
Teaching/medical school	2	1
Teaching/community hospital	6	3
Military	1	1
National Health Service Corps	2	1
Emergency room	22	12
Continuing training	3	2
Other	17	10
TOTALS	177	100

TABLE 4.—*Summary of Hospital Privileges of University of California, Davis, Family Practice Graduates*

Hospital Privileges	*Number Graduates*	*Percentage of All Graduates*	*Percentage of Graduates With Hospital Privileges*
Adult medicine	160	90	100
Pediatrics	154	87	96
ICU/CCU	136	77	85
Right heart catheterization	16	9	10
Pacemaker placement	16	9	10
Routine obstetric care	117	66	73
Complicated obstetrics	58	33	36
Cesarean section	37	21	23
Surgery, first assistant	131	74	82
Minor surgery	96	54	60
Major surgery	11	6	7
Emergency room only	2	1	N/A
No hospital affiliation	14	8	N/A

ICU/CCU = intensive care unit or coronary care unit, N/A = not applicable

a preference for group or partnership arrangements, though 24% opened a solo practice (Table 3). When graduates identified a mix of types of practices, they were categorized by their major practice type. In all, 62% use fee-for-service as the major payment mechanism for their practice.

The graduates were asked a series of questions regarding their scope of practice and hospital privileges. Their hospital privileges are summarized in Table 4. When asked about their impressions of the adequacy of their hospital privileges, 90% of the graduates indicated their range of privileges was about right and 10% responded that the privileges were too restrictive. Also, 15 graduates (8%) stated they had at least one requested hospital privilege denied.

Although 73% of the graduates had hospital obstetric privileges, only 56% were currently accepting obstetric patients. Another 26% stated they previously had accepted obstetric patients but were no longer doing so.

Regarding the use of mid-level practitioners, 35% of the graduates currently include family nurse practitioners or physician assistants in their practices. Another 12% stated they are not currently using nurse practitioners or physician assistants but plan to in the future.

When asked about teaching activities, 52% of the graduates stated they currently have a faculty appointment and an ongoing teaching relationship with a family practice program. Of those teaching, 59% were involved with UC Davis-sponsored or affiliated programs while the remainder are faculty of programs affiliated with other medical schools. Their teaching activities were fairly evenly split between instruction of medical students, family nurse practitioner or physician assistant students and family practice residents.

Discussion

An analysis of the results of this public policy initiative must measure outcomes against a set of stated goals. A review of the early literature calling for the development of a new medical specialty called family practice shows several goals that various authors have suggested. Davidson in 1980 suggested five major goals for family practice residency training.[16]

In reviewing federal and state legislation,[1-3] two themes emerge as universal goals. One of these is to reduce the perceived specialty maldistribution of physicians by producing more primary care physicians. Graham calls this the production function.[17] The second is to alleviate the perceived geographic maldistribution of physicians that leaves significant populations in medically underserved areas. Graham calls this the distribution function.[17]

The development of this regional network, like the development of family practice residency programs across the country, has increased the number of family physicians being trained. The report of the Graduate Medical Education National Advisory Council now shows an adequate number of primary care physicians in training to meet national goals.[18] The annual American Medical Association (AMA) study on medical education clearly shows a redistribution of physician specialty career choices when compared with the era before the rapid growth of family practice programs.[19,20] Federal and state funds have helped meet this objective.

The geographic distribution of physicians is a more complicated issue to analyze. Newhouse and co-workers,[21] using national data, suggest that increasing competitive forces are affecting physician practice site decisions and that more physicians of all specialties will choose practice sites away from the traditionally popular areas that are now considered adequately served or overserved.

Graduates of the UC Davis Network of Family Practice Residency Programs have located to a significant extent in areas determined by health planners to be underserved by physicians. When the practice locations of UC Davis family practice graduates in California are measured against the areas designated by the California Health Manpower Policy Commission[22] as medically underserved areas, we find that 31% are in such areas. Other family practice

graduate follow-up studies have shown similar results.[13-15,23,24] It appears that family practice is successfully responding to the problem of geographic maldistribution.

An issue that continually surfaces, especially with medical students who are considering family practice as a career, is the ability of family physicians to obtain adequate hospital privileges. Stern and Black and associates studied this issue on a national basis[25,26] and found significant regional variation. Geyman reviewed the national data available and concluded that less than 4% of hospital privileges requested by family practice residency graduates have been denied.[27] The findings that 90% of the UC Davis network graduates felt their privileges were "about right" and that only 8% had any privileges denied support the contention that residency-trained family physicians can obtain appropriate hospital privileges.

The UC Davis Department of Family Practice has also been an innovative leader in the development of training programs for family nurse practitioners and physician assistants. A stated goal of the department has been to train family physicians in a team practice model so they will continue that mode of practice upon graduation. The finding that 46% of the graduates are currently practicing with family nurse practitioners or physician assistants, or plan to in the future, speaks to the success of this team training mode.

A very positive finding was the large number, 52%, of graduates who are actively teaching in a family practice program. This suggests that the shortage of family practice faculty that plagued the early development of training programs is being overcome.

Summary

This study documents the significant impact that the UC Davis Network of Family Practice Residency Programs is having in California and the western states. Graduates are meeting the public policy expectations regarding family practice. This is especially true in the issue of location of practice.

The future challenge to studies of family practice graduates will be to go beyond the issues of location and scope of practice, to consider such issues as quality of care, content of practice and cost effectiveness of family practice.

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